



A LIST OF FUNGI OF KEWAUNEE COUNTY, WISCONSIN

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REPRINTED FROM THE TRANSACTIONS OF THE WISCONSIN ACADEMY OF
SCIENCES, ARTS, AND LETTERS, VOL. XVII, PART II,

Issued October, 1914.

A LIST OF FUNGI, CHIEFLY SAPROPHYTES, FROM THE REGION OF KEWAUNEE COUNTY, WISCONSIN.

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The following list of fungi collected mainly in Kewaunee County, Wisconsin, is based on specimens collected from 1904 to 1908. The mycological flora of this region has not been hitherto investigated, and this list forms a contribution to the fungus flora of the state.

Kewaunee County, lying as it does in the glaciated area along the shore of Lake Michigan in the northeastern part of the state, has a somewhat different flora from that prevailing in Juneau County where several of the collections noted here were made. The glacial moraines rise perhaps a hundred feet above the lake level and, where wooded, are well covered with groves of maple and beech. The low or swampy areas between the moraines are especially characterized by their dense growths of white cedar, black ash, and alder. "Blahnik's woods" is one of the many places in this vicinity where one passes quickly from the pastured hardwood groves down through the tamarack, hemlock, and cedar into the alders and finally out into the heath swamps. Oak, which is so common in Juneau County, is no longer found in the vicinity of Algoma, although it is fairly common at Red River, Little Sturgeon, and beyond Kohlberg. The wild hay marshes along the Ahnapee river are especially favorable for collecting Boleti in October and November. Even in the driest seasons, species of Discomycetes are plentiful in "Perry's swamp" or in the "black ash swamp" when few fungi are to be found elsewhere. Following the cow paths or "wood

roads," one can take for example a trip of about five miles around Krohns' Lake and pass through a region rich in species of fungi and other plants. Near McDonald's boat-house the growth of cedar which elsewhere borders the lake is replaced by a strip of "bottom lands" with rich, black soil and here and there a clump of alder or birch. As the ground rises abruptly, the usual fringe of hard woods is found.

In this undisturbed region the old trunks of hemlock and cedar lie strewn all about and are in just the state of decay for the growth of fleshy fungi. At the head of the lake one comes to the more open swamp lands with *Chara*, *Drosera*, *Sarracenia*, *Conocephalus* and species of heath. Beyond this is found a stand of tamarack, and finally the large woods, the "Otto's woods" frequently mentioned in these notes.

To aid in further critical study of the fungi of Wisconsin, to indicate variations, and to assist in the identification of the species, I have included certain field notes made at the time of collection, and references to descriptions and figures which represent especially well the forms as found here, or which differ characteristically from these forms. Specimens of the species listed have been placed in the herbaria of the University of Wisconsin and the New York Botanical Garden.

The work of listing the Wisconsin fungi was begun by Bundy (Geology of Wisconsin, 1876). This list is widely quoted but cannot be regarded as reliable, and the author left neither descriptions nor specimens. Trelease (Trans. Wis. Acad. Sci., 6: 106-144) in 1886 published a list of 286 parasitic fungi of Wisconsin. The first work of describing the species of fleshy fungi of the state was done by Trelease in 1889 in a bulletin on the morels and puff-balls of Madison (Trans. Wis. Acad. Sci., 7: 105-120). Davis (Trans. Wis. Acad. Sci., 9: 154-188; 11: 165-178; 14: 83-106; 16: 739-772) has continued the work of listing the parasitic fungi, so that we have now over 600 species authentically reported for the state. Another list of the higher fungi was prepared for Milwaukee County by Brown and Fernekes (Trans. Wis. Nat. Hist. Soc., 1902). Denniston has published descriptions of about twenty species of the genus

Russula occurring in the vicinity of Madison (Trans. Wis. Acad. Sci., 15: 71-88, 1905). The species of the Tremellineae of the state have been carefully worked out by Gilbert (Trans. Wis. Acad. Sci. 16: 1138-1911) and about twenty species have been described and illustrated. His monograph includes descriptions of several new species and varieties, with keys to the genera and species, and a list of the synonyms of the species.

If to the species mentioned in the above cited lists we add about 100 species reported for various collectors by Lloyd, Peck, and Rehm, we shall have about 1200 species reported from Wisconsin.

The following list includes 440 species of fungi from Kewaunee County and 40 additional species from Juneau and Dane Counties. These 40 species were not found in Kewaunee County and are included here either because of their rarity in America, or because of their wide distribution throughout the country and their rarity in Kewaunee County. *Clitocybe illudens* and *Lepiota americana*, which seem to be widely distributed and commonly occurring species, were not found in Kewaunee County. Although the people in the vicinity of Algema are familiar with many species of fungi which they use for food, I was unable to learn of any case of poisoning by mushrooms. This may be due in part to the fact that very few species of *Amanita* grow in this region. During the most favorable seasons for the growth of mushrooms only one or two specimens of *Amanita phalloides* and *A. muscaria* were found.

About ninety species of Discomycetes were found in this region and will be listed in another paper together with the species from other parts of the state.

The writer wishes to acknowledge the services of Prof. R. A. Harper in the preparation of this list.

HYMENOMYCETES.

AGARICINEAE.

Amanita Frostiana Pk. These specimens differ from the typical forms only in being fully as large as *A. Caesarea*. Under maple and hemlock, Schmeilling's grove, August, Algoma.

Amanita muscaria Linn. Figures of this species are generally too highly colored to represent our specimens. Coville, U. S. Dept. of Agric., Div. Cir. 13, says, "The brilliant red ones are rarely found here, but the white ones are not infrequent." June, Foscora; Mile bluff, August, Mauston.

Amanita pantherina D. C. Richon, Atlas Champ., Pl. 5, fig. 5-8, figures this form with the annulus distant from the pileus, generally below the middle of the stipe. In dry sandy soil under oak, Mile bluff, and in low woodland pastures, July, Mauston.

Amanita phalloides Fr. Forms with a greenish pileus with patches of the volva on the surface, as illustrated by Berkeley, Out., Pl. 3, fig. 1, occur at Fish Creek. Rolland, Atlas Champ., Pl. 3, fig. 3, figures the dull gray forms such as are found in Shaw's woods, September, Foscora.

Amanita recutita Fr. The dark drab color, the tough, tightly stretched skin of the pileus, and the inrolled margin of the volva are well shown in these specimens. Berk. Out., Pl. 3, fig. 3, illustrates such forms with no patches of the volva on the pileus. On decayed remains of coniferous log, edge of woods, Swaty's, August, Algoma.

Amanita rubescens Fr. The red color of the flesh was not very prominent. In open woods, in dry sod, Van Wie's park, July, Mauston; Krohn's Lake, August, Algoma.

Amanita verna Bull. The pure white forms said to be a variety of *A. phalloides* are abundant in the Mile Bluff woods. Winnebago Indians who camp here do not eat mushrooms and avoid even touching this species. June to August, Mauston. Rare at Algoma.

Amanitopsis fulva Schaeff. This species seems to have perfectly constant characters, although it may often grow in the same locality with *A. vaginata*. The pileus is tawny or golden-buff, usually with a few large, thick warts which fall off as the pileus opens. The stem is richly colored like the pileus and becomes rough from splitting. A distinct trace of a fuzzy annulus appears in the youngest forms. Specimens collected in this stage will grow several centimeters before drying and are very sensitive to geotropic stimuli. Schaeff., Icones, Pl. 95, and E. Michael, Fuehr. Pilz., Pl. 96, represent these forms very well. Van Wie's park, July, Mauston; Krohn's Lake, August, Algoma.

Amanitopsis vaginata Bull. Common in open woods, Mile Bluff, June, Mauston; rare in Blahnik's grove, August, Algoma.

Lepiota asperata Berk. On the ground, Otto's woods, September, Algoma.

Lepiota asperula Atk. This species seems to be similar to the preceding except that the brown pointed scales do not form concentric rings on the pileus, and the stem is white. Schmeilling's grove, August, Algoma.

Lepiota clypeolaria Bull. Richon, Atlas Champ., Pl. 21, figs. 1-3. illustrates these forms well. On low ground, Melchior's woods, October, Algoma.

Lepiota cristata A. & S. On the ground in rich open woods, Shaw's, August, Algoma.

Lepiota Friesii Lasch. These specimens have rough brown warts on the lower side of the annulus which is clothed above with a mass of cottony fibres. The chlorine odor is strong in young plants. On the ground among moss and leaves, Blahnik's grove, July, Algoma.

Lepiota meleagris Sow. On the ground under maple, Belgian settlement, September, Rosiere.

Lepiota naucina Fr. On lawns and along margins of woods, August and September, Algoma.

Lepiota procera Scop. Very common along roadsides and in maple woods, September, Rosiere.

Armillaria mellea Vahl. This is one of the most common autumn mushrooms at Algoma, the species most relied on as a source of winter food supply among the Bohemians. The species is variable as to size, color, character of the annulus and edible qualities. Aborted forms are common. On stumps and fallen timber, Decker's, September, Casco; Nelson's woods, July, Mauston.

Tricholoma album (Schaeff.) Fr. On wood-strewn earth, Hale's hill, June, Mauston; Otto's woods, July, Algoma.

Tricholoma equestre L. Specimens differ from *T. sejunctum* only in having yellow gills. Richon, Atlas Champ., Pl. 32, figs. 1-4, represents these forms. Rolland, Atlas Champ., Pl. 15, fig. 24, figures a form with a yellow stipe, while ours have a white stipe. On the ground, Danek's woods, September, Algoma.

Tricholoma grammopodium Bull. Bulliard, Hist. Champ., Pl. 585, and Hussey, Illust., Pl. 41, illustrate the large specimens. Common, Fluno's bluff under oak, June, Mauston; along roadsides, June, Foscara.

Tricholoma personatum Fr. Commonly gathered for food at Algoma as it is easily recognized by the lilac color and bulbous stipe. Schmeilling's grove, Algoma; Awe's, September, Foscara.

Tricholoma rutilans Schaeff. Clusters gathered from pine stumps had yellow gills and stipes, as figured by Rolland, Atlas Champ., Pl. 18.

fig. 22. Solitary specimens from hemlock logs had whitish gills and the stipes were spotted purple, as figured by Cooke, Illust., Pl. 8, and Lucand, Champ. Fr., Pl. 54. Mile Bluff, June, Mauston; Krohn's Lake, August, Algoma.

Clitocybe amethystina Bolt. The whole plant is deep purplish amethyst in the young forms. When old, the caps generally fade to gray but the gills retain their color. This species is quite distinct from *C. laccata*. On the ground in open woods, Stewart's pasture, June, Mauston; Perry's woods, July, Algoma.

Clitocybe cerussata Fr. On leaves, Otto's woods, August, Algoma.

Clitocybe clavipes (Pers.) Fr. On the ground, Runke's woods, Kodan, October.

Clitocybe compressipes Pk. In this species the pileus is 2–5 cm. broad, yellowish to light brown, plane or depressed, with or without zones. The plants usually grow in twos or threes; occasionally clusters of about twenty plants were found in pastures. Lone Rock, June, Mauston.

Clitocybe connexa Pk. The pale sky-blue colors are not visible except at close range. On the ground in low woods under maple and beech, August, Algoma.

Clitocybe cyathiformis Fr. These forms are well illustrated by Cooke, Illust., Pl. 113; Sow., Eng. Fung. Pl. 363; Bull., Herb. Franc., Pl. 375. Krohn's Lake, August, Algoma.

Clitocybe eccentrica Pk. The stipe is only slightly eccentric in our specimens. The base is coarsely strigose. On pieces of decayed wood and among leaves, Krohn's lake, August, Algoma. Peck *vid.*

Clitocybe ectypoides Pk. The pileus is plainly marked by blackish lines of closely appressed hairs branching dichotomously five or six times from the center to the margin. The gills are narrow and distant, not close, as described by Peck, Bull. Torrey Club, 25:821, 1898. Abundant on the ground, Krohn's Lake, August, Algoma. Peck *vid.*

Clitocybe gigantea Sow. This species differs from *C. maxima* in having a much shorter and thicker stipe. The differences are figured by Cooke, Illust., Pls. 106, 135. On the ground, Blahnik's grove, July, Algoma.

Clitocybe gilva Pers. The specimens dry well, retaining the characteristic yellow colors. The odor is strong, not unpleasant. October, Foscora.

Clitocybe illudens Schw. Very common in dense clusters on fallen timber and in clover fields, on roots and stumps in newly tilled ground, C. Remington farm, July, Mauston. Rare at Algoma.

Clitocybe infundibuliformis Schaeff. On the ground among leaves, Awe's, August, Foscora.

Clitocybe inversus Scop. This species closely resembles the last, from which it is here distinguished by the reddish color of the gills and the smaller, more globose spores. Lanzi, *Funghi Roma*, Pl. 95, fig. 3, gives a good figure of these forms. On the ground, Tornado, August, Kohlberg.

Clitocybe laccata Scop. Common on the ground in woods, early and late. Mile Bluff, June, Mauston; Melchior's, November, Algoma.

Clitocybe maxima Gaert. & Meyer. The pileus grows to be 25 cm. broad and the stipe 20 cm. high. Such forms are figured by Cooke, *Illust.*, Pl. 135. Under dense growth of young oak and pine, Dodge's, Crossville, near Mauston.

Clitocybe multiceps Pk. Clusters growing in the woods are more slender than those found along street curbing. Insects do not seem to infect the plants and they remain several days in a fresh condition after being gathered. August, Fish Creek.

Clitocybe socialis Fr. In Sphagnum swamps with *Boletinus paluster*, Blahnik's, November, Algoma.

Collybia acervata Fr. The shining stems are dark brown, four or five being bound together at the base by a mass of felt-like hairs. On decayed wood, Warner's grove, September, Algoma. Peck *vid.*

Collybia confluens Pers. Among leaves, Krohn's lake, August, Algoma. Peck *vid.*

Collybia dryophila (Bull.) Fr. The species is variable as to form and color. The commonest form is figured by Rolland, *Atlas Champ.*, Pl. 48, fig. 102. Some specimens have white gills and greasy, hygrophanous caps. These might be called *C. butyracea*. Cf. Cooke, *Illust.*, Pl. 143. On the ground among leaves, and cespitose near old logs, August, Foscora; Krohn's Lake, Algoma.

Collybia fusipes Fr. The most characteristic features of the species are the ventricose stipe and the manner in which the gills pull away from the stem in groups attached to a collar. This is well shown by Bulliard, *Hist. Champ.*, Pls. 36 and 106, p. 612; Paul., *Icon. Champ.*, Pl. 50 figs. 1, 2; Bolt., *Hist. Fung.*, Pl. 129. Most other figures show much longer stems which taper downward several inches. Timble's woods, October, Algoma.

Collybia lacunosa Pk. Specimens 0.5–2 cm. broad, 2–4 cm. high, golden yellow throughout with the exception of the whitish gills, were found frequently on coniferous logs. The plants dry with little loss of color or form. The species is rather tough for one of this genus. Specimens at the New York Botanical Garden, very similar to ours, having the same scabrous stipe, have been called *Omphalia scabriuscula* Pk. Krohn's Lake, August, Algoma. Peck *vid.*

Collybia laxipes Fr. This is a slender, symmetrical little plant with a velvet-coated stipe and flesh-colored pileus which is viscid in

moist weather. Very similar forms are figured by Cooke, *Illust.*, Pl. 191 B; Gillet, *Champ. Fr.* Common in wet weather, July, Perry's woods, Algoma.

Collybia myriadophylla Pk. The gills are very close together, of fine texture and of delicate lilac color which turns brown in drying. Hard, Mushrooms, p. 115, fig. 85, gives a good figure. On old logs, Schmeiling's, July, Algoma.

Collybia platyphylla Fr. Common in all woods. Krohn's Lake, June, Algoma; Lone Rock, Mauston.

Collybia radicata Rehl. Common in woods near stumps, Heuer's, August, Algoma; in a cistern, November, Algoma.

Collybia radicata furfuracea Pk. On account of the furfuraceous coat of the pileus and stipe, some of these specimens, 10-14 cm. broad and 44-55 cm. high, might be referred to this variety. The outer layer of the stipe is much checked and cracked. Krohn's Lake, August, Algoma.

Collybia velutipes Curt. On logs and stumps all seasons of the year, March to January, Algoma.

Collybia zonata Pk. On hemlock logs, Krohn's Lake, Algoma, August.

Mycena acicula Schaeff. Fries, *Icones*, Pl. 85, fig. 3, gives a good illustration of this brilliantly colored little fungus. Otto's woods, August, Algoma.

Mycena alcalina Fr. Otto's woods, August, Algoma.

Mycena capillaris Schum. This form is pure white throughout, 1-2 mm. broad, with a thread-like stem. On old bark among leaves, Perry's Swamp, July, Algoma; campus woods, June, Madison.

Mycena corticola Fr. On old stub in pasture lands, Detjen's, April, Algoma.

Mycena cyanothrix Atk. Nelson's woods, July, Mauston.

Mycena epipterygia Scop. In these forms the pileus is pinkish at the apex and grayish at the margin. On leaf mould, Schmeiling's, August, Algoma.

Mycena galeaticulata Scop. Common on old stumps, Detjen's, May, Algoma.

Mycena haematopa Pers. On old logs, Fluno's bluff, July, Mauston; Devine's woods, August, Algoma.

Mycena leaiana Berk. The whole plant is deep salmon color. Cespitose on stumps and logs. Otto's woods, June, Algoma.

Mycena polygramma Bull. Schmeiling's grove, July, Algoma; Fluno's woods, July, Mauston; cemetery woods, June, Madison.

Mycena pura Pers. A number of cespitose specimens growing in dense shade had perfectly white stems and gills, with the typical pinkish, purple, or lilac caps. The more common forms are lilac colored

throughout, the gills becoming ochraceous with age. Such plants are figured by Rolland, *Atlas Champ.*, *Pl.* 52, *fig.* 113. Perry's woods, August, Algoma.

Mycena rugosa Fr. On decayed logs, Melchior's woods, November, Algoma.

Mycena succosa Pk. On coniferous logs, Krohn's Lake, September, Algoma.

Omphalia campanella Batsch. On logs, May to September, Mauston, Kilbourn and Algoma.

Omphalia epichysium Pers. The pileus is funnel shaped, smoky gray, 2-3 cm. broad. Krohn's lake, Dvorak's, August, Algoma.

Pleurotus applicatus Batsch. On wood, Schmeiling's woods, August, Algoma.

Pleurotus angustatus Berk. On decayed logs and stumps, Schmeiling's swamp, June, Algoma.

Pleurotus cornucopioides Fr. The gills form ridges running down the stem, which is roughly strigose at the base. The spores are lilac-colored in mass as are those of *P. sapidus*. Figures by Paulet, *Icon. Champ.*, *Pl.* 28, and Boudier, *Icones Mycol.*, *no.* 374, resemble our forms. On stumps and logs, Otto's woods, August and September, Algoma.

Pleurotus dryinus Fr. On logs, Devine's woods, September, Algoma.

Pleurotus ostreatus (Jacq.) Fr. The spores are pure white in mass. Hussey, *Illust.*, *Pl.* 19, may be considered typical for our forms. On maple logs, September, Casco.

Pleurotus petaloides Bull. On decayed wood among moss, Otto's woods, May, Algoma.

Pleurotus porrigens Pers. This species may become 2-3 cm. broad without having any indication of gills. At this stage they resemble white discomycetes. On decayed logs, Devine's woods, August, Algoma. Peck *vid.*

Pleurotus sapidus Kalch. Common on logs, Fish Creek; Heuer's woods, September, Algoma.

Pleurotus serotinus Schaeff. On limbs and logs, September, Foscora.

Hygrophorus Bresadolae Quel. In all of the young specimens there is a distinct veil which forms an annulus which disappears as the plant becomes fully expanded. Peck's description and figure of *H. speciosus* Pk., *Rep. Mus.* 53, *Pl.* 51, well represent this form except as to the annulus. Bresadola, *Fung. Mang.*, *Pl.* 9, shows a rather permanent ring, but his figures seem to be of only partially expanded plants. Under tamarack along the Ahnapee river, October, Algoma. Bresadola *vid.*

Hygrophorus cantharellus Schw. Among decayed leaves and wood, Krohn's Lake, August, Algoma.

Hygrophorus chlorophanus Fr. On ground in damp places, Blahnik's swamp, July, Algoma; June, Blue Mounds.

Hygrophorus coccineus (Schaeff.) Fr. In grass under maple, Schmeiling's woods, August, Algoma.

Hygrophorus conicus (Scop.) Fr. The viscid conical caps are often greenish black when growing. On the ground, Fish Creek; Schmeiling's woods, August, Algoma.

Hygrophorus eburneus (Bull.) Fr. The pileus is shining white from the slimy substance that covers it in wet weather. The gills, which are at first pure white, become cinnamon brown in drying. September, Foscora; Schmeiling's woods, Algoma.

Hygrophorus hypothejus Fr. Gillet, Champ. France, figures a plant which represents this form. The pileus is olivaceous and is covered with a bluish sticky slime. The flesh becomes rose-colored in drying or decaying. Boudier, *Icones Mycol.*, Pl. 33, no. 240, shows the characteristic crooked stipe. Under leaves, Blahnik's grove, August, Algoma.

Hygrophorus psittacinus Fr. The flesh is thin, so that the gills show through the pileus. Boudier, *Icones Mycol.*, Pl. 42, represents the forms considerably larger. Under tamarack, Danek's woods, September, Algoma.

Hygrophorus pratensis Fr. Common on grassy knolls near Blahnik's woods, October and November, Algoma.

Hygrophorus puniceus Fr. Some forms of the plant resemble *H. conicus* except that the reddish-yellow to scarlet colors are well retained in drying. Schmeiling's grove, August, Algoma.

Lactarius deliciosus Fr. The large forms are not as highly colored as usually figured for the species. Common in Otto's woods, August, Algoma. At Fish Creek the typical forms are occasionally found.

Lactarius griseus Pk. Devine's swamp and Perry's woods, September, Algoma.

Lactarius hygrophoroides B. & C. On the ground, Blahnik's woods, September, Algoma.

Lactarius indigo Schw. This is a rare species at Algoma, only one well characterized specimen having been found. September, Shaw's woods, Foscora.

Lactarius pergamenus Fr. In open woods, August, Algoma.

Lactarius piperatus Fr. Abundant in pastured woods, Schmeiling's, August, Algoma; Fluno's Bluff, July, Mauston.

Lactarius scrobiculatus Scop. This is a very large and coarse *Lactarius*. The cap is covered with coarse, glutinous hairs, especially at the margin. In wet weather the pileus has two or three watery

zones. The milk is white, soon changing to greenish yellow, and is not strongly acrid. The pitted stipe and coarse hairs are well shown by Krombh., Schwam. *Pl.* 58, *figs.* 1-6. Specimens found in open places are nearly white, those in deep woods are yellowish. Schmeiling's woods, August, Algoma.

Lactarius subdulcis Fr. Cooke, *Illust.*, *Pl.* 1002, figures the forms which grow abundantly in Riverside swamp, October, Algoma.

Lactarius torminosus Schaeff. Fresh plants are nearly white; the reddish zones of the pileus are seen only when the flesh is broken or the plants are dry. Rolland, *Atlas Champ.*, *Pl.* 33, *fig.* 63, illustrates characteristic specimens. Frequently found to be parasitized by *Hypomyces*. Common in Blahnik's woods, September, Algoma.

Lactarius trivialis Fr. The quantity of milk in the species is variable. During dry weather large specimens growing in sandy soil contained only slight amounts. Mile bluff, June, Mauston.

Lactarius vellereus Fr. This species grows in dense clusters in old roads. Most plants have a stipe only 4-5 cm. long, with pileus 10-14 cm. broad. Boudier, *Icones Mycol.*, *Pl.* 49, *no.* 47, figures such forms, except that there are no red spots on the gills and the pileus is more tomentose. Blahnik's woods, August, Algoma.

Lactarius volemus Fr. On the ground in wet places, Krohn's lake and Blahnik's woods, September, Algoma.

Lactarius zonarius (Bull.) Fr. Specimens of this species grow to be 20 cm. across and when dry show 5-15 distinct zones, which in fresh plants are watery rings in the flesh. The milk is white, slightly acrid, with no change of color. The spores are white. The flesh is firm and free from larvæ. Quantities were cooked and found tough and of a strong flavor but not poisonous. There is just such a tendency for the plants to grow in pairs as is figured by Bulliard, *Herb. Fr.*, *Pl.* 104. Abundant under white cedar in extremely dry weather when other gilled mushrooms were scarce. Dewey's spring, August, Algoma. Peck *vid.*

Russula adusta Fr. Mile Bluff, June, Mauston; Otto's woods, August, Algoma.

Russula alutacea Fr. Ihlenfeld's woods, August, Algoma.

Russula atropurpurea Pk. Schmeiling's grove, August, Algoma; Mile Bluff, June, Mauston.

Russula citrina Fr. On decayed logs and on wood strewn earth, Blahnik's swamp, August, Algoma.

Russula decolorans Fr. On decayed logs, August, Algoma. Peck *vid.*

Russula delica Fr. Shaw's woods, August, Algoma; Mile Bluff, August, Mauston.

Russula emetica Fr. Our forms are exceedingly large for the species, 10 cm. broad and 12 cm. high. The plants are fragile and the flesh very peppery, but they are edible when cooked. Shaw's swamp, September, Foscora; Stewart's pasture swamp, July, Mauston.

Russula foetens Pers. Chadwick's woods, July, Mauston; common in Blahnik's woods in August, Algoma.

Russula fragilis Pers. This species seems to be similar in color and taste to *R. emetica*, but the flesh is white under the pellicle and the plants are much smaller. Roadsides near Little Sturgeon, August.

Russula integra Fr. Mile Bluff, August, Mauston; Tornado, September, Rosiere.

Russula nigricans Fr. Fluno's woods, August, Mauston.

Russula olivacea Fr. Van Wie's Park, August, Mauston.

Russula roseipes (Secr.) Bres. Mile Bluff, July, Mauston.

Russula sordida Pk. Under coniferous trees, July, Fluno's Bluff, Mauston.

Russula virescens (Schaeff.) Fr. Ihlenfeld's woods, September; Mile Bluff, June, Mauston.

Cantharellus aurantiacus Fr. The color varies from bright orange, when growing on the ground in open places, to brown, when growing on hemlock logs. Abundant in Danek's woods, August, and at Krohn's Lake, September, Algoma.

Cantharellus brevipes Pk. Under oak, Tornado, September, Kohlberg.

Cantharellus cibarius Fr. The apricot odor is present in the Algoma specimens. Common at Mile Bluff, August, Mauston.

Cantharellus cinnabarinus Schw. The cinnabar color of the exterior is in striking contrast to the pure white flesh. Devine's woods, August, Algoma.

Cantharellus infundibuliformis Scop. Mile Bluff, June, Mauston.

Cantharellus minor Pk. The plants are scarcely 2 cm. high and 1 cm. broad. They are yellowish-orange, turning brown in drying. Detjen's pasture in open grove, September, Algoma.

Nyctalis asterophora Fr. On *Russula nigricans*, Fluno's Bluff, August, Mauston.

Marasmius minutus Pk. The pilei were densely covered with rough spherical spores of some parasitic fungus. Each pileus has about four or five gills. On decayed leaves in damp places in Perry's alder swamp, August, Algoma. Peck *vid.*

Marasmius coherens (Fr.) Bres. Growing in dense cluster under alder, Algoma swamp.

Marasmius oreades Fr. This species is rare at Algoma. In grassy spots along roadsides, September.

Marasmius perforans Fr. On hemlock leaves, Blahnik's woods, September, Algoma.

Marasmius rotula Scop. Common on bark and decayed wood, Warner's grove, September, Algoma.

Marasmius siccus Schw. Among decayed leaves, Devine's woods, August, Algoma.

Marasmius urens Fr. Fluno's woods, July, Mauston.

Lentinus cochleatus Fr. This species grows in dense clusters at the bases of stumps. Schmeiling's woods and Krohn's Lake, September, Algoma.

Lentinus Lecomtei Fr. (*Panus rudis* Fr.) On logs and stumps Fluno's woods, June, Mauston; Blahnik's grove, September, Algoma.

Lentinus lepideus Fr. On docks and ties, and on roofs of houses, July, Algoma.

Lentinus spretus Pk. These specimens were well dried when found. They are 6-14 cm. broad. The surface of the pileus is cracked, forming brownish scales. The center is entire, depressed or raised. The gills are 1 cm. broad and decurrent. The stipe is very slender in proportion to the size of the pileus, tapers downward, is solid, tough and covered with brownish scales. Three of four plants were joined together at the base of the stipe. On old saw-mill timbers, July, Crossville, near Mauston.

Lentinus vulpinus Fr. On maple stumps, Belgian settlement, August, Rosiere.

Panus conchatus Fr. Sessile forms with the twisted, shell-shaped pileus are figured by Bulliard, Hist. Champ., Pl. 298. We also have such forms as are shown by Cooke, Illust., Pl. 1149, Schaeff., Icones Fung., Pl. 43, 44. Krombh., Schwam. Pl. 42, figs. 1 2, best represent the forms that seem to run over to *P. torulosus*. On stumps, Blahnik's grove, September, Algoma.

Panus stipticus (Bull.) Fr. On stumps and fallen timber, October, Casco.

Panus torulosus Fr. This plant has a violet colored pileus and stipe as figured by Bolton, Hist. Fung., Pl. 146. The gills are amethyst colored in all young specimens, the flesh is white and thick. On stumps, Otto's woods, July to September, Algoma.

Trogia crispa (Pers.) Fr. The specimens collected from tamarack in December showed a reddish color at the point of attachment when bruised, but this change of color does not seem to be present in plants in the growing season. Perry's swamp, Algoma.

Schizophyllum commune Fr. Common on old limbs, Devine's woods, June to August, Algoma.

Lenzites betulina Fr. Common on birch and poplar, Devine's woods, September, Algoma.

Lenzites sepiaria Fr. Resupinate forms sometimes have thick gills. On tamarack stumps, Detjen's woods, May to October, Algoma.

Lenzites variegata Fr. This species seems to be very closely allied to *L. betulina* and may be only a variety. The pileus is sulcate and beautifully zoned. The gills are thick and have a tendency to form pores. Some forms are resupinate. Abundant on stumps of frondose trees, October, Casco.

Lenzites vialis Pk. Pores of young specimens are whitish-lilac and pruinose. On old rails near Catholic church, April, Algoma.

Volvaria bombycina (Pers.) Fr. On maple log, Krohn's Lake, August, Algoma.

Volvaria pusilla Pers. A typical specimen of this species was found among leaves in damp woods, although it is usually reported as growing among weeds in gardens. Krohn's Lake, August, Algoma.

Volvaria speciosa Fr. A large number of fine plants appeared in potato fields in June, 1905, none was found during the four succeeding years. The species was found however in Sept. 1912, Algoma.

Pluteus cervinus Schaeff. The forms growing in saw-dust are frequently 20 cm. broad. Several varieties of this species have been found on logs and stumps. It is difficult to distinguish any constant characteristics for them. Common, June to September, Algoma and Mauston.

Pluteus granularis Pk. On logs, Schmeiling's, July, Algoma.

Entoloma clypeatum L. On the ground, Detjen's woods, May, Algoma.

Entoloma jubatum Fr. Common in open woods, Blahnik's, July, Algoma.

Entoloma rhodopolium Fr. The gills are not adnate to the stem. They barely reach the stem in large specimens and seldom show marks of breaking away from it. One fairly constant character is the abrupt bend at the base of the stem. Abundant in Otto's woods, June, Algoma; in mulching under hedges, June, Madison.

Entoloma strictius Pk. The pileus has a sharp umbo in all of these plants. The stipe is tall, straight and slender. Peck and others have reported the species as growing in autumn and we find what appears to be the same species in May and June, Schmeiling's woods, Algoma.

Clitopilus abortivus B. & C. Dried plants have retained a very strong, pleasant, mealy odor. No aborted forms have been seen. Shaw's sphagnum swamp, August, Foscora.

Clitopilus popinalis Fr. Bresadola considers *C. noveboracensis* Pk. a synonym for this species. Young plants have oblong hygrophanous spots arranged somewhat concentrically on the pileus. The whole pileus becomes greasy hygrophanous in old age. Although a

large number of specimens were set for spore prints, we were unable to obtain spores enough to determine the color in mass. Even when thoroughly cooked, the plants are strong and unpalatable. Devine's woods, August, Algoma. Bresadola *vid.*

Clitopilus prunulus Scop. Well illustrated by E. Michael, Fuehr. Pilz., No. 52; Richon, Atlas Champ., Pl. 36, figs. 1-4. On the ground, Danek's woods, September, Algoma.

Leptonia asprella Fr. Among needles and moss under tamarack, Riverside swamp, August, Algoma.

Leptonia serrulata (Pers.) Fr. The gills are whitish, tinged with azure-blue, serrate. The stipe is characteristically marked by rings formed by the cracking of the outer coat. A very delicate species whose distinctive points are destroyed in drying. Perry's swamp, under tamarack and white cedar, September, Algoma.

Claudopus nidulans Pers. On decayed logs, cemetery woods, June, Madison; Trumble's woods, July, Mauston; Krohn's Lake, August, Algoma.

Pholiota adiposa Fr. Well figured by Berkeley, Out., Pl. 8, fig. 2. Grows on sides of logs and from decayed spots on living trees. Fellow's woods, August to October, Foscora.

Pholiota aegerita Brigant. The pileus cracks into areas showing the yellow flesh. The spores are brick-red. Solitary, on maple logs, Decker's saw-mill, September, Casco.

Pholiota dura Bolt. The caps are 7-10 cm. broad, deeply cracked. The stipe is solid and elastic. In gardens under rose bushes, June, Algoma.

Pholiota marginata Pers. The common forms which grow in woods are figured by Lanzi, Funghi Mang., Pl. 76, fig. 2. In lawns and frondose woods, June to August, Algoma.

Pholiota squarrosa (Muell.) Fr. The foul, heavy odor ascribed to this species by Stevenson, Brit. Fungi, p. 230, was noticed in a single cluster of about twenty plants growing at the base of a maple tree. In these the stipes were 10-20 cm. high and 1 cm. thick, not as roughly scabrous as usually figured. The more common forms are such as are figured by Hussey, Illust., Pl. 8; Diet., Deutsch. Crypt., Pl. 140; Rolland, Atlas Champ., Pl. 52. Belgian settlement, September, Kohlberg.

Pholiota squarrosoides Pk. The pileus is covered with rough, erect scales. The stipe is rough and shaggy below the ring, smooth above. A species much confused with the preceding. Those growing in dry weather are not viscid and when dry are whitish with no change of color. On logs, Otto's woods, August, Algoma.

Inocybe asterophora Quel. The stipe has a separable pellicle and a bulb which gives it the appearance of *Agaricus acetabulosa* Sow., Eng., Fung., Pl. 303. The spores are nodular, 10-11.5 microns in diam-

eter. Cooke, *Illust.*, Pl. 385, figures the forms which we found under *Osmunda*, Nelson's woods, Crossville, July, Mauston.

Inocybe geophylla violacea Pat. The sharp umbo and bright violet color of the pileus are well preserved in the dried specimens. Blahnik's grove, September, Algoma.

Inocybe subochracea Pk. Common in thick woods, Algoma, August.

Hebeloma crustuliniforme Bull. A species with clay-colored spores which appeared in great numbers in all the groves about Madison in June and was found throughout the following July and August at Mauston and Algoma.

Flammula flavida Schaeff. On decayed logs, Schmeiling's woods, July, Algoma.

Flammula polychroa Berk. The margin of the pileus is decorated with triangular scales. Those on the surface of the cap are purple or purple-brown. The stem is curved when plants grow from sides of logs or timbers, etc. Common. Krohn's Lake, August, Algoma.

Flammula sapinea Fr. Grows in clusters on coniferous logs, Krohn's lake, September, Algoma.

Naucoria horizontalis Bull. Well illustrated by Sicard, *Hist. Champ.*, Pl. 23, fig. 117. On sides of decayed stumps, Detjen's woods, June, Algoma.

Naucoria vernalis Pk. Common on logs, August, Otto's woods, Algoma.

Galera tenera Schaeff. Forms fairy rings on lawns or grows on rubbish heaps in groves. Schaeff., *Icones*, Pl. 70, and Diet., *Deutsch. Crypt.*, Pl. 157, give good figures. Common. Blahnik's grove, August, Algoma; July, Mauston.

Crepidotus croceophyllus Berk. The gills are bright salmon to orange-colored, comparatively broad. The tawny-olive pileus and ferruginous spores together with the bright gills make it a species easily recognized. On logs with *C. malachius*, June, cemetery woods, Madison.

Crepidotus fulvo-tomentosus Pk. Common on dead limbs, Krohn's Lake, June to August, Algoma.

Crepidotus malachius B. & C. The striations on the margin are not always apparent. The soft, whitish skin is usually covered with brown spores. Common on decayed logs, Krohn's Lake, August, Algoma.

Crepidotus mollis Schaeff. The watery margin seems to be quite a constant character even in dry weather. Berkeley, *Out.*, Pl. 9, fig. 6, represents the common form. On decayed trunks, Schmeiling's swamp, August, Algoma.

Crepidotus versutus Pk. A small white species common from June to October on dead limbs. Melchior's woods, Algoma.

Cortinarius cinnamomeus Fr. Otto's woods, June, Algoma.

Cortinarius corrugatus subsquamosus Pk. The reddish spots and corrugations on the pileus are the identifying marks. On the ground in mixed woods, Fluno's Bluff, July, Mauston.

Cortinarius lilacinus Pk. The stipe is solid and bulbous, much more slender than that of *C. violaceus*. The whole plant is lilac-colored but fades in drying. On bogs, Stewart's woods, July, Mauston; Alaska lake, August, Alaska.

Cortinarius purpurascens Fr. The flesh of the pileus and stipe turn deep purple when bruised. Clustered in dry places, Blahnik's woods, September, Algoma.

Cortinarius sebaceus Fr. The pileus is whitish to alutaceous, the remainder of the plant white throughout, the gills remaining white even after the salmon-rust-colored spores have traced a ring on the stipe. On the ground under birch, Ihlenfeld's grove, September, Algoma.

Cortinarius violaceus Fr. Lanzi, Fung. Mang. *Pl.* 61, *fig.* 1, and Schaeff., *Icones*, *Pl.* 3, illustrate this common species. Among grass in open places, Detjen's woods, September, Algoma.

Paxillus corrugatus Atk. Easily identified by Atkinson's figure, Mushrooms, *Pl.* 48, 1900. The spores are yellowish-ochre. On decayed logs, Schmeiling's woods, August, Algoma. Rare.

Paxillus atrotomentosus Fr. Under white cedar along banks of Lake Michigan, Braemer's flats, August, Algoma.

Paxillus involutus (Batsch.) Fr. The pileus is frequently 15 cm. broad. On the ground among needles under dense growth of young coniferous trees, Schmeiling's woods. A very much smaller and more slender variety showing rusty-purple stains on the stipe and pileus was found on logs, Krohn's Lake, September, Algoma.

Bolbitius fragilis Fr. The gills are watery and deliquesce after one or two hours but they do not dissolve. The margin of the pileus is striate. On dung, after rains, Ray's pasture, June, Algoma.

Agaricus campestris L. Rare. Kashbom's pasture, September, Rio creek.

Agaricus haemorrhoidarius Schulzer. The pileus is beautifully adorned with pointed scales. The flesh of both the pileus and stipe turns rose-red immediately after being bruised. On the ground under leaves of beech and maple, Blahnik's grove, September, Algoma.

Agaricus placomyces Pk. Hard, Mushrooms, p. 315, *fig.* 256, gives a good figure of this plant. It grows in groups in pastures under oak trees; July, Fluno's bluff, Mauston.

Agaricus silvicola Vitt. The fresh specimens are white as figured by Rolland, *Atlas Champ.*, *Pl.* 72, *fig.* 160. They turn yellow in drying without being bruised. Cooke, *Illust.*, *Pl.* 529. Common in woods, but

never occurs in plowed grounds or fields around Algoma. Stony Creek Foscora; Krohn's lake, August, Algoma.

Agaricus subrufescens Pk. The pileus is whitish, covered with soft scales formed by bunches of short hairs, broad conical, 8-10 cm. broad. The lower surface of the large annulus which hangs down about 4 cm., is pinkish and furfuraceous. The stipe is hollow, enlarged at the base, 3 cm. thick at the lower end, flattened at the apex. Said to be similar to *A. fabaceus*. Under beech, Blahnik's grove, July, Algoma.

Stropharia semiglobata Batsch. It is extremely difficult to find any two characters differentiating this species from *S. stercorearius* Fr. They vary toward each other constantly. Forms with hollow stipes frequently have spores 10-12 x 16-20 mic. Comparing figures, Sow. Eng. Fung., Pl. 248, Grev., Scot. Crypt., 6:344, and Cooke, Illust., Pl. 113, 114, the external characters seem to be similar. Common on dung in pastures, Erdman's farm, June to October, Algoma.

Hypholoma appendiculatum Bull. Common in lawns after rains, June, Mauston and Algoma.

Hypholoma candolleianum Fr. The pileus is dark-brown, being hygrophanous even in dry weather. Scattered along roads in woods, June, Fluno's farm, Mauston.

Hypholoma incertum Pk. On *débris* of old lumber piles in groves, Blahnik's July, Algoma. Peck *vid.*

Hypholoma perplexum Pk. Densely clustered on saw-dust, veneer factory, November, Algoma.

Hypholoma rugocephalum Atk. A very characteristic species with spotted gills somewhat ochre-colored. The spores are purple-black, inequilateral, pointed, 7-8 x 9-10 microns. The gills and spores indicate a relationship to the genus *Panaeolus*. On the ground, solitary, in paths and open woods, Devine's, September, Algoma.

Hypholoma sublateritium Schaeff. Distinguished from the related species by the solid or stuffed stipe and the soapy taste of the flesh. In clusters or scattered over the grass around maple stumps, Schmeiling's grove, October, Algoma.

Psathyra maestiger B. & Br. The pileus is 2 cm. broad and high, date-brown, hygrophanous. The characteristic breast-shaped pileus is well shown even in the dried plants. The stipe is 0.4 x 7-15 cm., brittle, flocculose at the apex. Remnants of a veil cling to the margin of the pileus, although there is no ring on the stipe. The spores are deep-purple, blunt elliptical, 4-6 x 8-10 microns. In black mould in a hollow log, by a roadside in open woods, September, Casco.

Psilocybe foenisecii Pers. On lawns and meadows, July, Algoma.

Psilocybe spadicea Schaeff. On rubbish heaps, Blahnik's grove, September, Algoma.

Coprinus atramentarius Fr. Common in dense clusters under alder in pastures and in newly made lawns, June to August, Algoma.

Coprinus comatus Fr. It required four days for one plant to reach maturity, when it was 25 cm. broad. Perry's lumber yard, August, Algoma.

Coprinus ebulbosus Pk. (*Coprinus picaceus ebulbosus* Pk.). Hard, Mushrooms, p. 336, fig. 274, gives a good figure of the specimen found in cemetery woods, June, Madison.

Coprinus ephemerus Fr. There is little substance to the gills or caps. The species grow in hot-beds and around horse stables; each day's crop turns to ink and disappears in a short time. April to June, Algoma.

Coprinus micaceus Bull. The gills are purple-brown in most of the Algoma plants. Peck says that the spores are sometimes blackish-brown. The gills do not deliquesce unless the air is moist. On lawns, dirt-covered poles in pastures and around stumps in woods, May to August, Algoma.

Coprinus ovatus (Schaeff.) Fr. A form which springs up in gardens and soon turns black. The ring is inconspicuous and the stipe deeply rooting. July, Mauston.

Coprinus plicatilis Fr. This species grows in mulching under rose bushes. It is well illustrated by Sowerby, Eng. Fung. Pl. 364. Eppling's yard, July, Algoma.

Panaeolus papilionaceus Fr. Common on dung in groves, June, Schmeiling's, Algoma.

Panaeolus retirugis Fr. This differs from the preceding species in having large fragments of the veil attached to the margin of the pileus, which is wrinkled and not cracked into areas. Figures by Atkinson, Mushrooms, Pl. 11, fig. 45, Gillet, Champ. Fr. On dung, Detjen's pasture, June to November, Algoma.

BOLETINEAE.

Boletinus paluster Pk. [*Boletinellus paluster* (Pk.) M.] The specimens are not as bright red as figured by Peck, Rept. 23, Pl. 6, figs. 4-6. In Sphagnum swamps, Blahnik's, November, Algoma.

Boletinus pictus Pk. The ochre-colored spores and larger, more angular pores distinguish this species from *B. spectabilis* which grows in the same locality. Under cedar and tamarack, Ahnapee river swamp, September, Algoma.

Boletinus porosus (Berk.) Pk. [*Boletinellus merulioides* (Schw.) M.] A species with large, angular, golden-yellow tubes. Shaw's swamp, September, Foscora.

Strobilomyces strobilaceus Berk. In dense woods around Mauston, June to September. Not found at Algoma.

Boletus bicolor Pk. [*Ceratomyces bicolor* (Pk.) M.] Not common. North side of Mile Bluff, August, Mauston.

Boletus Americanus Pk. Among grass in open places, Detjen's swamp woods, September, Algoma.

Boletus chrysenteron Bull. [*Ceratomyces communis* (Bull.) M.] Along banks in gulleys and ravines, July, Mauston; in open groves, Krohn's Lake, August, Algoma.

Boletus Clintonianus Pk. The Bohemians call this the "butter mushroom." Common under tamarack after the first rains in September. Algoma.

Boletus cyanescens Bull. [*Gyroporus cyanescens* (Bull.) M.] Frequently found with two or three joined together at the base of the stipe. In sandy soil, Robinson's bluff, June, Mauston; Stony Creek, September, Foscora.

Boletus elbensis Pk. The entire plant is whitish-gray. The pileus is covered with a brown glutinous substance. The flesh is thick, but is so soft and spongy that the Bohemians will not eat even the young specimens. The tubes are large, angular and frequently compound. Their arrangement in irregular radiating rows would suggest that the species should be placed in the genus *Boletinus*. The stipe is clothed with a furry coat somewhat resembling that of *Strobilomyces strobilaceus*. The flesh of both stipe and pileus sometimes changes color to a blue-green when bruised, but this character is not at all constant in the plants found growing several seasons in the same location. It is a very distinct species and one easily identified. Under tamarack and cedar in low swamps along the Ahnapee river, September, Algoma. Peck *vid.*

Boletus edulis Bull. [*Ceratomyces crassus* (Batt.) M.] The lilac-purple stains on the stipe and pileus are present where the plants have been bruised as usually described for *B. eximius*. The tubes are greenish-white, the young forms having the mouths stuffed. The stipe is never enlarged at the base and is always delicately reticulated, at least on the upper half, thus suggesting *B. affinis*. We have referred specimens, collected in the same locality, with pileus deeply cracked into pyramidal areas, to *B. frustulosus*. Under boards, logs and in grassy places, under beech and maple along the border of Blahnik's grove, August, Algoma.

Boletus felleus Bull. [*Tylophilus felleus* (Bull.) M.] Heuer's woods, August, Algoma. Small forms in low grounds, Stewart's swamp, July, Mauston.

Boletus frustulosus Pk. [*Ceratomyces frustulosus* (Pk.) M.] In these specimens the pileus is whitish, or tinged with brown, cracked

deeply into polygonal areas, showing the white flesh underneath. They agree exactly with "Type No. 1" of the species collected by Underwood, and it may be that the description should be enlarged to include the forms listed above under *B. edulis*. Plants growing in dry sod where there was little shade would naturally become deeply cracked. Under beech, south edge of grove, Blahnik's, August, Algoma.

Boletus glabellus Pk. [*Ceratomyces miniato-olivaceus* (Frost) M.] Under pine, along pasture borders, Fluno's bluff, June, Mauston.

Boletus luridus Schaeff. [*Suillellus luridus* (Schaeff.) M.] The stipe is merely dotted with fine points and not reticulated, dark-red or yellow. The tubes are minute with uneven cinnabar-red mouths. The quick change of color of the flesh to dark blue when broken is very characteristic. Under beech and maple, Blahnik's grove, August, Algoma.

Boletus niveus Fr. A variety of the rough-stiped form which is white throughout. It is much smaller than *B. scaber* and has only a rough stipe in common with that species and *B. punctipes*. This white form seems to be a distinct species with constant characters. Under alder and tamarack, Detjen's swamp, September, Algoma.

Boletus piperatus Bull. [*Ceratomyces ferruginatus* (Batsch.) M.] Where snails had eaten the tubes, the flesh was rose-pink. The tubes at the margin are 5-6 mm. long, giving the plants a blocky appearance. Merrill, Mycologia, Pl. 19, fig. 2, gives an excellent figure of this species. Common on mossy hummocks, Blahnik's grove, August, Algoma.

Boletus Russellii Frost [*Ceratomyces Russellii* (Frost) M.] North side of Mile Bluff, August, Mauston.

Boletus scaber Bull. [*Ceratomyces viscidus* (L.) M.] Common in mixed woods, Ihlenfeld's, July to September, Algoma.

Boletus spectabilis Pk. The pileus is covered with a reddish fur-like tomentum which cracks into patches forming triangular scales which are easily rubbed off. In wet weather these patches are jelly-like. The lavender colored veil, which covers the tubes at first, melts into a jelly as the plant ages. The purple-brown spores are characteristic of the species. The Bohemians will not eat this *Boletus*. In swamps along the Ahnapee river, September, Algoma.

Boletus subluteus Pk. In sandy soil under pine and oak, Fluno's Bluff, August, Mauston.

Boletus subtomentosus L. [*Ceratomyces subtomentosus* (L.) M.] Common around Mile Bluff, July, Mauston.

Boletus sphaerosporus Pk. This species was found growing abundantly in grassy places along the drive in the University grounds during the first weeks in June. The appearance of young specimens is uninviting owing to the purplish slime which covers the thick leathery veil extending from the stipe to the margin of the pileus. The

edibility of the species was carefully tested. The flesh is solid, free from larvæ and of excellent flavor when broiled or fried. Old plants are dry and spongy and would not be gathered for food. The annulus was not white in any of the specimens seen. Madison.

Boletus versipellis Fr. The constant characters of this species as we find it which serve to distinguish it from *B. scaber* are the bright rusty-orange color of the pileus, the appendiculate margin of the same color as the pileus, the quick change of color of the flesh to a "coppery-red" or purple, the more coarsely roughened stipe, the dark points often arranged in reticulations, and the lighter colored and smaller spores. The pores may be either yellowish or white in young forms. The stipe becomes greenish or purple after being broken, finally becoming blackish. In young forms the pileus is scarcely broader than the stipe when the latter is full grown at this period. E. Michael, Fuehr. Pilz. No. 4, Bresadola, Fung. Mang., Pl. 93, Pat. Tab. Anal., fig. 666, Richon, Atlas Champ., Pl. 54, figs. 4, 5, 7, are all good illustrations of these forms. Common under beech and alder, Ihlenfeld's woods, July to September, Algoma.

Boletus granulatus L. [*Rostkovites granulatus* (L.) Karst.] Under pine and hemlock, Schmelling's woods, September, Algoma.

POLYPORACEAE.

Polyporus adustus (Willd.) Fr. [*Bjerkandera adusta* (Willd.) Karst.] Common on old logs and stumps, September, Kohlberg.

Polyporus arcularius (Batsch.) Fr. On old limbs, Shaw's woods, Foscora. Rare.

Polyporus betulinus Fr. [*Piptoporus suberosus* (L.) M.] Common on birch stubs, Devine's woods, August, Algoma.

Polyporus borealis Fr. [*Spongipellis borealis* (Fr.) Pat.] On logs, Detjen's woods, May, Algoma. Rare.

Polyporus brumalis (Pers.) Fr. [*Polyporus polyporus* (Retz.) M.] Common on old logs and sticks, Detjen's, October, Algoma.

Polyporus caesius (Schrad.) Fr. [*Tyromyces caesius* (Schrad.) M.] Our forms are rather large for the species, frequently being 10-12 cm. broad. On logs, Heuer's woods, September, Algoma.

Polyporus chioneus Fr. [*Tyromyces chioneus* (Fr.) Karst.] On dead maple, Schmelling's woods, August, Algoma. Common.

Polyporus circinatus Fr. Sections of several specimens of fungi originally identified as *P. tomentosus* showed the duplex character ascribed to *P. circinatus*. Lloyd, Myc. Notes, p. 30, fig. 198, finds that there is a distinct difference, and that the two species differ, as Fries maintained. The color of the pileus in our forms varied from light

yellow to dark ferruginous brown. The stipe is usually eccentric. Under tamarack and pine, Detjen's woods, November, Algoma. *Bresadola vid.*

Polyporus elegans (Bull.) Fr. Some of these forms have an even and not umbilicate pileus with a thick blunt margin, and a short, more or less eccentric stipe, as figured by Bulliard, *Hist. Champ., Pl. 124*. Other forms have a thin umbilicate pileus, 3 cm. broad, and a stipe up to 12 cm. long. Common on old limbs, Detjen's, September, Algoma.

Polyporus distortus Schw. [*Abortiporus distortus* (Schw.) M.] On old stumps of deciduous trees, September, Krohn's Lake, Algoma, Murrill *vid.*

Polyporus flavidus Pk. [*Grifola fractipes* (B. & C.) M.] The pileus is 5-8 cm. broad, whitish to alutaceous, faintly zoned, depressed and slightly tomentose at the center. The pores are small, white, and decurrent. Three or four stipes may arise from the common basal mass. Fellow's woods, September, Foscora.

Polyporus frondosus (Dicks.) Fr. [*Grifola frondosa* (Dicks.) M.] On old stumps, August, Kohlberg.

Polyporus fragrans Pk. [*Bjerkandera puberula* (B. & C.) M.] On old stumps, Ihlenfeld's woods, September, Algoma. Murrill *vid.*

Polyporus fumosus (Pers.) Fr. [*Bjerkandera fumosa* (Pers.) Karst.] At the base of a living poplar, Blahnik's woods, August, Algoma. Murrill *vid.*

Polyporus gilvus Schw. [*Hapalopilus gilvus* (Schw.) M.] Common. On living maple, Devine's woods, August, Algoma.

Polyporus guttulatus Pk. [*Tyromyces guttulatus* (Pk.) M.] On old coniferous logs, probably hemlock, Devine's woods, August, Algoma. Peck *vid.* Murrill *vid.*

Polyporus lacteus Fr. [*Tyromyces lacteus* (Fr.) M.] On fallen timber, Devine's woods, September, Algoma. Murrill *vid.*

Polyporus lentus Berk. A small centrally stiped plant, 1-1.5 cm. broad and 5 cm. high, with large angular whitish pores which are decurrent. On limbs, Heuer's woods, Algoma. Rare. Neumann *vid.*

Polyporus officinalis Fr. [*Fomes laricis* (Jacq.) M.] There is considerable doubt as to the correctness of the identification of the specimen referred to here on account of its having been collected in an apparently growing condition on a piece of slab of some coniferous wood lying in a damp woodshed. The context is chalk-white and has a very bitter taste like that of *P. officinalis*. July, Algoma.

Polyporus osseus Kalch. Several pilei are closely imbricate, tapering downward to a common stipe-like portion. The flesh is soft and watery in fresh specimens, at first white, drying alutaceous and very hard. Shaw's woods, October, 1905. Krohn's Lake, on coniferous log, August, 1909, Algoma. *Bresadola vid.*

Polyporus picipes Fr. [*Polyporus fissus* (Berk.) M.]. The pileus varies from 2 cm. to 20 cm. broad and from 0.5 mm. to 10 mm. in thickness at the center. The chestnut color of the pileus with the blackish center, and the hard, brittle flesh of dry specimens are constant characters. On logs, Krohn's Lake and Belgian settlement, July and August, Algoma.

Polyporus resinosus (Schw.) Fr. [*Fomes annosus* (Fr.) Cooke]. A thin, non-resinous liquid is usually found hanging in drops from the pore surface of growing specimens. Such animals as mice and rabbits will eat plants remaining on stumps during the winter. They are too tough to eat even when well cooked. Common. On logs and stumps, Blahnik's woods, July to September, Algoma.

Polyporus Spraguei B. & C. [*Tyromyces Spraguei* (B. & C.) M.]. On decayed logs, Krohn's Lake, September, Algoma. Murrill *vid.*

Polyporus squamosus Fr. [*Polyporus caudicinus* (Scop.) M.]. One centrally stiped plant was collected from the top of a maple stump, Blahnik's grove, July, Algoma.

Polyporus subradicatus Murrill. The stipe is about 8 cm. long and only 4-6 mm. thick, otherwise the description given by Murrill, N. Am. Fl., 9:63, applies well to this form. On the ground near a log, Otto's woods, July, Algoma. Murrill *vid.*

Polyporus sulphureus Fr. [*Laetiporus speciosus* (Batt.) M.]. Common. On logs, stumps, and on the ground, growing from buried sticks. July to September, Algoma.

Polyporus tomentosus Fr. [*Coltricia tomentosa* (Fr.) M.]. Similar to those identified as *P. circinatus* except that the flesh of the pileus is not duplex. The whole plant is dark ferruginous. On the ground among pine needles, Shaw's woods, September, Algoma.

Polyporus umbellatus (Pers.) Fr. [*Grifola ramosissima* (Scop.) M.]. Rare. Detjen's woods, September, Algoma. Neumann *vid.*

Polyporus varius Fr. Gillet, Champ. France, Bolton, Hist. Fung., Pl. 83, 168, Grev., Scot. Crypt., 202, represent these forms. The pileus is frequently 10 cm. broad with flesh 1-2 cm. thick, variously deformed and doubled. On logs, June, Blue Mounds; Heuer's woods, October, Algoma.

Polyporus sp. Pileus 5 cm. broad, deeply umbilicate, light drab, slightly squamulose, the margin strongly inrolled; flesh 1 mm. thick, white, fragile; tubes hexagonal elongated radiately, 1 x 1.5-2 mm. across and about 3 mm. long, decurrent; stipe central, brownish, 0.5 x 10 cm., rough tomentose toward the base; spores white, hyaline, smooth, ovoid, 5 x 6 microns. Peck refers the specimen somewhat doubtfully to *P. lentus* Berk. Although the plant was fully developed, few spores were obtained, and these differed materially from the spores of *P. arcularius* Schw. On the ground, growing from buried wood. June, Blue Mounds.

Gloeoporus conchoides Mont. Brought in on oak cord-wood, April, Algoma.

Merulius lacrymans (Jacq.) Fr. On under side of planks, Decker dock, June, Algoma.

Merulius tremellosus Schrad. On bark of oak and on decayed logs, Tornado, September, Kohlberg.

Polystictus biformis Klotz. [*Coriolus biformis* (Klotz.) Pat.]. On maple stumps, Danek's woods, January, Algoma. Peck *vid.*

Polystictus cinnabarinus (Jacq.) Fr. [*Pycnoporus cinnabarinus* (Jacq.) Karst.]. Figured by Bulliard, *Hist. Champ.*, Pl. 501, fig. 1. On trunks and limbs, June to October, Algoma.

Polystictus cinnamomeus (Jacq.) Sacc. [*Coltricia cinnamomea* (Jacq.) M.]. Common in sandy soil, June, Hale hill and Mile Bluff, Mauston; Krohn's Lake, July, Algoma.

Polystictus conchifer Schw. [*Poronidulus conchifer* (Schw.) M.]. Both forms common on dead limbs, Krohn's Lake and Danek's woods, October, Algoma.

Polystictus fibrillosus Karst. [*Pycnoporellus fibrillosus* (Karst.) M.]. A form frequently reported as *P. aurantiacus* Pk. Occasionally plants become much faded with age. Rare. On coniferous logs, October, Awe's grove, Foscora.

Polystictus hirsutus Fr. [*Coriolus nigro-marginatus* (Schw.) M.]. Common. On dead limbs, Otto's woods, November, Algoma.

Polystictus perennis (L.) Fr. [*Coltricia perennis* (L.) M.]. Well illustrated by Rolland, *Atlas Champ.*, Pl. 89, fig. 197. On the ground, Schmeiling's grove, August, Algoma.

Polystictus pergamenus Fr. The violet color of the pore surface of the young plant is a constant characteristic. Common on limbs, logs and standing trunks of frondose trees, September, Algoma.

Polystictus pubescens (Schum.) Fr. [*Coriolus pubescens* (Schum.) M.]. The pileus is coarsely pubescent and the whole plant is white, with little change in drying. On decayed stumps, Krohn's Lake, September, Algoma. Murril *vid.*

Polystictus versicolor (L.) Fr. [*Coriolus versicolor* (L.) Quel.]. Good figures by Hussey, *Illust.*, Pl. 24, Schaeff., *Incones*, Pl. 263, 268, and Rolland, *Atlas Champ.*, Pl. 96. Common. Danek's woods, August, Algoma.

Fomes applanatus Pers. [*Elfvigia megaloma* (Lev.) M.]. Several authors have held that the brown spores that are frequently found on the pileus in growing seasons are conidia which arise from the upper surface. They are in reality basidiospores that have been borne upward by air currents and deposited on the upper surface. Several isolated plants were thoroughly cleaned and paper tacked over the pileus. After a few days the papers were covered with the same

spores but none were found on the pileus under the papers. There are also several conflicting opinions as to the relation between the American and the European forms of this species. Lloyd, Myc., Notes, No. 6, p. 60; Murrill, N. Am. Fl., 9; 114; Moffatt, Bull. Nat. Hist. Surv. 7:108; Atkinson, Ann. Myc., 6: 179. Common on deciduous woods, Algoma.

Fomes conchatus (Pers.) Fr. [*Pyropolyporus conchatus* (Pers.) M.]. On dead alder, Perry's woods, August, Algoma.

Fomes connatus Schw. [*Coltricia focicola* (B. & C.) M.] On stub of partially decayed beech, Devine's woods, August, Algoma.

Fomes Everhartii Ellis & Gall. [*Pyropolyporus Everhartii* (E. & Gall.) M.]. Originally figured in Journal of Mycology, vol. V, 1889, Pl., 12. On old logs, Mile Bluff, July, Mauston.

Fomes fomentarius (L.) Fr. [*Enfvingia fomentaria* (L.) M.]. The pileus is light colored and only slightly sulcate. Sow. Eng. Fungi, Pl. 133, Gillet, Champ. Fr. Pl. 467, are of this type. Devine's woods, on birch, September, Algoma. Lloyd, Myc. Notes, pp. 22, 341, 373, Pl. 194, describes a rare form that has a hard, shining, black, strongly concentrically sulcate crust. He does not agree with Murrill that it is *F. fomentarius* of advanced age and indurated. The sulcations dip into the pore layers. Such specimens were found in June at Mile Bluff, Mauston.

Fomes graveolens (Schw.) Cooke. [*Globifomes graveolens* (Schw. M.]. Hard, Mushrooms, p. 405, fig. 334, figures the black, shining, overlapping pilei. Rare. On oak stub, Loomis woods, June, Mauston.

Fomes igniarius (L.) Gill. [*Pyropolyporus igniarius* (L.) M.] On oak, Coon Rock, July, Mauston.

Fomes lucidus Leys. [*Ganoderma Tsugae* M.]. A variable species, either sessile or long-stiped. The upper surface is often covered with brown spores, as is that of *F. applanatus*. Atkinson, Bot. Gaz., 46:334, 1908, discusses the variations of this species and considers that the name *Ganoderma pseudo-boletum* (Jacq.) M. should be applied to the American plants. Common. On trunks and stumps of *Tsuga canadensis*, Krohn's lake, August, Algoma.

Fomes nigricans Fr. On decayed poplar log, Trumble's ravine, July, Mauston.

Fomes unguatus (Schaeff.) Sacc. The margin is yellow or reddish, depending on the season. In the spring of the year the pore layers are easily separated from the pileus. On fallen tamarack trunks, Detjen's woods, April, Algoma.

Fomes roseus (A. & S.) Cooke. On sidewalks, and on trunks of coniferous trees, Perry's swamp, June, Algoma.

Daedalea ambigua Berk. [*Daedalea Aesculi* (Schw.) M.] On fallen maple, Blahnik's grove, August, Algoma.

Daedalea confragosa (Bolt.) Pers. The pores are whitish-lilac in fresh plants and are fairly regular, but with age become split in lines forming gills. Such forms are sometimes called *Lenzites corrugata*. On fallen birch, Krohn's lake, August, Algoma.

Daedalea obtusa (Berk.) Neumann. [*Spongipellis unicolor* (Schw.) M.]. The pileus may be either hoof-shaped with a thick margin, or flat-expanded with a thin margin. Full grown plants are ashy-white in wet weather, the yellow colors appearing only in the dried specimens. They make good substitutes for sponges. Common on oaks, August, Mauston.

Daedalea quercina (L.) Pers. On oak stumps, Fluno's bluff, July, Mauston.

Daedalea unicolor (Bull.) Fr. [*Cerrena unicolor* (Bull. M.]. Common on oak and maple stumps, June, Mauston; Runke's woods, August, Algoma.

Favolus alveolaris (DC.) Quel. [*Hexagona alveolaris* (DC.) M.]. Other names: *F. europaeus*; *F. canadensis*; *F. boucheanus*. On hickory and beech, Danek's, June, Algoma; Heineman's, August, Mauston.

Favolus rhipidium Berk. Distinguished by its resemblance to *Panus stipticus*. On blocks of hewn timber, Coon rock, June, Mauston.

Solenia anomala (Pers.) Fr. Common on alder twigs, December, Perry's swamp, Algoma.

Poria Blyttii Fr. The pores are small, regular, cinnamon-colored. Awe's, September, Foscora. Bresadola *vid.*

Poria laevigata Fr. Perry's swamp, December, Algoma.

Poria salmonicolor B. & C. Covered the under side of a hemlock log for several inches. Krohns' Lake, August, Algoma.

Poria subacida Pk. Common on old logs, Detjen's woods, March to August, Algoma.

Poria vulgaris Fr. Krohn's Lake, September, Algoma. Neumann *vid.*

Poria nigra Berk. On oak log, Mile bluff, July, Mauston. Murril, *vid.*

Trametes odorata (Wulf) Fr. Differs from *T. protracta* Fr. in having much longer tubes, 4-8 mm., a blunt or sometimes rolled margin, and in the color and character of the surface. Common. Otto's woods, September, Algoma.

Trametes protracta Fr. Well illustrated by Fries, *Icones*, Pl. 191. His figure shows zonate marks on the pileus although it is not so described. A cross section is triangular, showing a thin margin. Perry's woods, October, Algoma.

Trametes Pini (Thore) Fr. [*Porodaedalea Pini* (Thore) M.]. Common on living spruce, Perry's swamp, August, Algoma. Well figured by Sicard, *Hist. Nat. Champ.*, Pl. 60 fig. 307,

Trametes rigida Berk & Mont. Stony Creek, September, Foscora.

Trametes serialis Fr. Common on logs, Detjen's woods, April, Algoma.

Trametes stereoides Fr. On dead limbs, Runke's woods, October, Algoma.

HYDNEAE.

Hydnum adustulum Banker (*Steccherinum adustulum* Banker). A small species with a cream colored, pubescent pileus marked with brown zones. The stipe is eccentric in Algoma forms. On pieces of wood among needles in swamps, under *Larix* and *Thuja*, Ahnapee river, September, Algoma.

Hydnum caput-ursi Fr. [*Manina caput-ursi* (Fr.) Banker.] The large tubercle is narrowed behind into a small point of attachment. The branches are short and thick, 2-3 cm. long. Fries, *Icones*, Pl. 7, shows a good cross section view of the plant. A somewhat different form is figured by Peck, Rept., 51. Pl. 56, fig. 8-12. Otto's woods, September, Algoma.

Hydnum coralloides Scop. [*Manina coralloides* (Scop.) Banker.] The whole plant branches into primary and secondary divisions, the first devoid of teeth except where they are on slight protuberances or abortive branches. May be confused with *H. caput-ursi* on account of the massive branches and long pendent teeth. Atkinson, *Mushrooms*, Pl. 67, fig. 185, 1900, has such a figure for *H. caput-ursi*. Schaeff, *Icones*, Pl. 142 *H. coralloides* is a good illustration of our specimens. On oak and maple, Tornado, Kohlberg, September.

Hydnum laciniatum Leers. The teeth are short, flexible and slender, 2-5 mm. long. The branches are long, narrow, often anastomosing, and having the teeth distributed uniformly on the lower surface. Bull., *Hist. Champ.*, Pl. 390. Peck, 48th Rept. Pl. 24 fig. 11 13, Atkinson, *Mushrooms*, 1900, fig 184, McIlvaine, *Am. Mush.*, Pl. 134, represent the forms referred here to *H. laciniatum*.

Hydnum erinaceum Bull. On oak, Tornado, September, Kohlberg.

Hydnum floriforme Schaeff. [*Hydneum floriforme* (Schaeff.) Banker]. The color of the pileus varies from light yellow to reddish orange. Often reported as *H. aurantiacum* A & S. On the ground, Heuer's woods, August, Algoma.

Hydnum graveolens Delast. [*Phellodon graveolens* (Delast.) Banker]. On the ground, Shaw's woods, September, Algoma. Common.

Hydnum rhois Schw. [*Steccherinum rhois* (Schw.) Banker]. On fallen limbs and on deciduous woods, September, Krohn's Lake, Algoma. On base of frog crates in zoological laboratory, June, Madison.

Hydnum ochraceum Pers. [*Steccherinum ochraceum* (Pers.) Gray]. Common. On decayed limbs, Perry's woods, December, Algoma.

Hydnum pulcherrimum B. & C. [*Steccherinum pulcherrimum* (B. & C.) Banker]. Young plants are pure white, sessile, sometimes imbricate. A white milk exudes from wounded portions. This milk later becomes sticky and hardens, changing to reddish purple. Older plants are yellowish, turning reddish in drying. Pieces of wood are usually attached to collected specimens. Common on dead oak trees, birch stumps, and on living maple. Mile Bluff, June, Mauston; Otto's woods, September, Algoma.

Hydnum repandum L. Common. On the ground under beech, maple, etc., Schmeiling's, June to August, Algoma.

Hydnum septentrionale Fr. [*Steccherinum septentrionale* (Fr.) Banker]. Several pilei are closely imbricated forming a semiglobular mass attached at a narrow vertical line. Plants often fall off from the place of growth owing to their weight. On dead maple, Tornado, November, Kohlberg.

Hydnum velutinum Fr. [*Hydnellum velutinum* (Fr.) Banker]. The whole plant is soft and spongy, rusty-brown, tomentose. The substance at the upper portion of the stipe is convex-transversely zoned. The deformed and spongy stipe is well figured by Gillet, Champ. France, *Pl. 324*, Pat., Tab. An., fig. 677, Bull., Hist. Champ., *Pl. 453*. Sometimes referred to *H. spongiosipes* Peck. Common. Under pines, Detjen's woods, September, Algoma.

Irpex fuscescens Schw. (*Irpex cinnamomeus* Fr.) Common. On dead alder, willow, etc. Perry's swamp, Algoma.

Irpex lacteus Fr. On stumps, September, Casco.

Irpex tabacinus B. & C. Almost entirely resupinate, covering the end of a large log, *Tsuga canadensis*. The teeth are long, 4-7 mm., whitish, seriate. The color of the plant is dark tobacco brown. Krohn's lake, August, Algoma.

Irpex tulipiferae Schw. On small dead limbs of various deciduous trees, Stony Creek, October, Algoma.

Phlebia merismoides Fr. The spores are subglobose, smooth, white, minute, 3-4 microns. On under side of deciduous log. Detjen's swamp, April, Algoma.

Phlebia radiata Fr. Some forms do not show the radiating structure of the folds. Common. On decayed logs, Ihlenfelds' woods, September, Algoma.

THELEPHOREAE.

Thlephora caryophyllea (Schaeff.) Pers. A thin, coriaceous, stipitate form with uneven or lacerated margin. The entire surface is smooth and silky. Saunders & Smith, Myc. Illust., Pl. 41, figs. 7-12; Schaeff., Icones, Pl. 325. Blahnik's grove, July, Algoma.

Thlephora intybacea Pers. Soft spongy plants, unevenly colored purplish-brown, several growing together irregularly and climbing up on small bushes. Sowerby, Eng. Fung., Pl. 213; Bull., Hist., Champ., Pl. 483. In Sphagnum swamps, November, Algoma.

Thlephora palmata Scop. On the ground, Hale's woods, August, Mauston.

Thlephora Schweinitzii Fr. Common on the ground in woods, June to September, Mauston and Algoma.

Craterellus cornucopioides Fr. Mature specimens are sometimes not over 2 cm. tall and 0.5 cm. broad. Lanzi, Fung. Mang., Pl. II, fig. 5, shows the more common large forms. On the ground, Van Deusen's woods and Mile Bluff, August, Mauston.

Stereum complicatum Fr. Common on alder, Perry's swamp, December, Algoma.

Stereum fasciatum Schw. On logs and stumps, June to September, Mauston and Algoma.

Stereum frustulosum Fr. On logs and stumps, Tornado, August, Kohlberg.

Stereum hirsutum Fr. On fallen timber, Krohn's Lake, August, Algoma.

Stereum purpureum Pers. On fallen limbs of some deciduous

Stereum radians Fr. The pileus is covered with silky hairs, tree, Krohn's Lake, August, Algoma.

radiately striate, 1-2 cm. broad. Seems to be similar to *S. sericeum* Schw. On twigs and limbs, Blahnik's swamp, July, Algoma.

Stereum rufum Fr. On some coniferous stub, Perry's swamp, December, Algoma.

Hymenochaete tabacina (Sow.) Lev. On dead limbs of willow, Perry's swamp, December, Algoma.

Hymenochaete ferruginea Bull. On logs, Blahnik's swamp, July, Algoma. Bull. Hist. Champ., Pl. 378.

Coniophora suffocata (Pk.) Masee. The spores are subglobose, 8-10 microns, pinkish-ochraceous, completely covering the thin bladdery hymenium. When the spore mass cracks, the whitish subiculum is seen as described by Moffatt, Bull 7, p. 11, Nat. Hist. Surv. Chi. On charcoal, spreading out on leaves, September, Algoma.

Corticium cinereum Fr. On old maple limbs, August, Schmieling's grove, Algoma.

Corticium laeve Fr. On dead branches, Heuer's woods, August, Algoma.

Corticium lilacino-fuscum B. & C. On dead willow, Belgian settlement, September, Kohlberg.

Corticium salicinum Fr. Common. On willow, Perry's swamp, August, Algoma.

Cyphella pezizoides Zopf. On oak and maple leaves, June, Foscora.

CLAVARIEAE.

Clavaria amethystina Bull. Berkeley, Out., *Pl. 18, fig. 2*, shows a form with violet-colored branches having whitish tips. The much branched forms as figured by Sicard, *Hist. Champ, Pl. 61, fig. 315*, are more common. Among grass under oak, Fluno's Bluff, June, Mauston.

Clavaria cinerea Bull. Bull., *Hist. Champ., Pl. 354*. Rare. Heuer's woods, September, Algoma.

Clavaria grandis Pk. This species seems to be near *C. tsugina* Pk, but has a very strong, heavy aromatic odor. On the ground among coniferous logs, Krohn's Lake, August, Algoma.

Clavaria coronata Schw. The spines are stouter and firmer than those of *C. pyxidata* which it resembles in having the cup-shaped tips to the branches. On decayed log, Blahnik's woods, July, Algoma.

Clavaria cristata Pers. Common. On decayed logs, Tornado, September, Kohlberg.

Clavaria inaequalis Muell. Branches twisted and divided at the apex as figured by Sowerby, *Eng. Fung., Pl. 253*. In groups under dense shade of alder, Stony Creek, September, Algoma.

Clavaria pulchra Pk. Small plants, 2 cm. high, slender club-shaped. The spores are bright yellow. Similar to those growing on earth in palm tub and identified by Dr. Peck. Krohn's Lake, September, Algoma.

Clavaria pyxidata Pers. Common. On logs and woody earth, Krohn's Lake, July to October, Algoma.

Clavaria stricta Pers. On wood-strewn earth, Krohn's Lake, August, Algoma.

Clavaria tsugina Pk. Dark ochre to rusty brown, the tips whitish, sharp. Tendency to branch from one large, central, stipe-like portion. Abundant. On logs, *Tsuga canadensis*, Krohn's Lake, August, Algoma.

Clavaria sp. Pure white plants 1-2 cm. high with slender branches. Solitary on leaves which were much decayed, Krohn's Lake, August, Algoma.

TREMELLINEAE.

Exidia glandulosa (Bull.) Fr. Common on old limbs and cord-wood, March to November, Algoma.

Tremella albida Hud. On wet stumps and logs, Blue Mounds, June; Detjens' woods, September, Algoma.

Tremella foliacea Pers. On dead limbs, Perry's swamp, December, Algoma; cemetery woods, June, Madison.

Tremella frondosa Fr. On living tamarack, Ihlenfield's woods, September, Algoma.

Tremella fuciformis Berk. [*Tremella reticulata* (Berk.) Farlow.] A large white, much-branched plant. On the ground, Runke's pasture, August, Algoma.

Tremella intumescens Sm. Eng. Bot. Pinkish-watery when fresh, then tawny brown. The spores are oblong, curved. Very common on beech stumps after rains, Blahnik's grove, August, Algoma.

Tremella lutescens Pers. On old wood, Otto's woods, June, Algoma. Rare.

Tremella mesenterica Retz. On oak bark, Mile Bluff, July, Mauston.

Tremella mycetophila Pk. [*Exobasidium mycetophila* (Pk.) Burt.] On the pileus and stipe of *Collybia dryophila*, Krohn's Lake, August, Algoma.

Tremella sebacea Pers. On grass, July, Algoma.

Naematelia encephala Fr. This specimen consists of about a dozen curving folds forming a brain-like aggregation 7cm. across. The nucleus of each fold is tough, white, elastic, 0.5–1 cm. wide and 2 cm. high, sometimes branched. The nuclei of the folds run together into a common base of similar consistency. Each fold is covered with a firm gelatinous layer 1–1.5 cm. thick, which is about the color of boiled starch and not flesh-colored as described by Fries, Syst. Myc., p. 227. Neither is it reddish-brown until dry. When soaked in water the cluster of folds swells to its original size and assumes a whitish color. The maximum size has been given as 3–6 lines, Alb. & Schw., Cons. Fung., p. 301, but this may refer to a single fold. This cluster of folds is plainly a single plant. A section through the plant resembles a section through a brain. The external appearance is likewise brain-like. On living tamarack at a point where a stub of a dead limb protruded. Detjen's woods, April 1, Algoma.

Tremellodon gelatinosum (Scop.) Pers. Common on hemlock logs and stumps, Krohn's Lake, August; Schmelling' woods, September, Algoma.

Dacryomyces multiseptatus Beck. When moist the plants are bright golden-yellow, but turn orange when dry. The spores are yellow, curved, 6-9 septate, 6 x 20 microns. This may be *Dacryomyces aurantia* (Schw.) Farlow. Common on old stubs, and at the base of living tamarack and spruce, Perry's swamp, June to September, Algoma.

Dacryomyces chrysocoma Bull. A form resembling a yellow discomycete when moist. On old sticks and limbs, Detjen's woods, September, Algoma.

Dacryomyces deliquescens (Bull.) Duby. On decayed board, Schmeilling's grove, June, Algoma.

Calocera cornea Pers. Growing from cracks on logs and limbs in wet weather. Common at Krohn's Lake and Schmeilling's woods, June, Algoma.

Guepinia spathularia (Schw.) Fr. On bark, Otto's woods, Algoma.

GASTEROMYCETES.

HYMENOGASTREAE.

Hymenogaster rufus Vitt. Resembles a young puff-ball; 3 cm. broad, whitish, changing to lilac-purple without and within when bruised. The gleba is white, masked by an immense number of rusty-brown spores. The spores are roughly reticulated, subglobose or blunt-elliptical, 7 x 8-8.5 microns, with a blunt hyaline apiculus 1.5 microns long, and a large central oil globule 3-4 microns in diameter. Among needles, Schmeilling's woods, September, Algoma. Bresadola *vid.*

Rhizopogon roseum Bres. *in litt.* This plant differs from *R. rubescens* in the character of the peridium and spores. The peridium is persistent, smooth, dark brown, devoid of adhering branched fibres. The cavities are minute. The spores are 3.5 x 12-13 microns. In sandy soil, partially exposed, under pine near "Stand rock," August, Kilbourn.

PHALLOIDEAE.

Dictyophora duplicata (Bosc.) Fischer. The pileus is very coarsely reticulated. The veil varies in length from 1 to 4 cm. In sand roads, swamps, and near stumps in woods. Common. Blahnik's grove, August, Algoma; Flunos' pasture, June, Mauston.

Ithyphallus Ravenelii (B. & C.) Fischer. The denuded pileus is scarcely wrinkled, not at all reticulated. There is a short, non-perforated veil which extends about one-third the length of the pileus and

can be seen by making a section of the pileus. The tapering stipe and characteristic pileus are shown by Lloyd, Myc. Notes, *Pl. 115*, Atkinson, Mushrooms, *Pl. 74, fig. 202*, 1900. Algoma.

Phallo-gaster saccatus Morg. The hymenophore is composed of irregularly anastomosing bars and bands, pink or lilac. Spore mass green, foul smelling. On decayed poplar log, Fluno's woods, July, Mauston.

LYCOPERDACEAE.

Calvatia caelata (Bull.) Morg. These puff-balls are usually beaker-shaped as figured by Hollos, Gast. Ungar., *Pl. 15*, the young forms having well developed rhizomorphs, *Pl. 15, fig. 12*. The roughly warted or cracked peridium is not constant. Lloyd, Gast., *Pl. 36 and fig. 39*, shows the external markings. The sterile portion occupies one-half to three-fourths of the plant. Along roads and in pastures, September, Algoma. Common.

Calvatia craniiformis (Schw.) Fr. The greenish-yellow spores and the greater proportion of the sterile base distinguished this plant from *C. cyathiformis*. There is no resemblance to a cranium. Schmeiling's pasture at the edge of woods, August, Algoma.

Calvatia cyathiformis (Bosc.) Morg. The lilac-purple spores are echinulate and larger in diameter than the capillitial threads. The sterile portion occupies only a small part of the base. Perry's pasture September, Algoma.

Calvatia gigantea Batsch. Specimen 33 cm. across collected by Melvin Perry in the woods. The spores are light rust-colored. The sterile portion is small. M. Perry's woods, September, Algoma.

Lycoperdon cepaeforme Bull. In dry sterile places in pasture, Mile Bluff, July, Mauston. Peck *vid.*

Lycoperdon cruciatum Roth. Among moss and grass in swamps, under tamarack, September, Algoma.

Lycoperdon gemmatum Batsch. Common. On the ground and on decayed logs, Algoma.

Lycoperdon perlatum Pers. Seems to be a species quite distinct from *L. gemmatum*. The manner in which the peridium tapers to a well-formed stipe is very characteristic. Cespitose, in sandy soil, Thompson's woods, July, Mauston. Peck *vid.*

Lycoperdon pusillum (Batsch.) Fr. Devine's woods among grass, August, Algoma.

Lycoperdon pyriforme Fr. Common. On logs and stumps, Detjen's woods, August, Algoma.

Lycoperdon umbrinum Pers. In swamps after rains, under cedar and tamarack, Ahnapee river, September, Algoma, Peck *vid.*

Lycoperdon Wrightii B. & C. Peridium is white, covered with rough polygonal warts. Figured in *Mycologia*, November, 1909. Sandy soil, Mile Bluff, June, Mauston.

Bovista pila B. & C. Common in all pastures, September, Algoma.

Bovista plumbea Pers. Rare. F. Robinson's pasture, June, Mauston.

Geaster hygrometricus Pers. The rough spores and branched capillitium of this species have been made the basis of a genus, *Astraeus*, Morgan. On ground, Fish Creek, August. Not common.

Geaster limbatus Fr. This is often described as a black *Geaster*, but that is the color of only the inner peridium. Hussey, *Illust.*, figures a form in Plate 2 which has a light gray inner peridium. Krohn's Lake, August, Algoma.

Geaster minimus Schw. The peristome and sharp beak are characteristic. Perry's swamp, August; Belgian settlement, September, Kohlberg.

Geaster rufescens Fr. Common. Krohn's Lake, August, Algoma.

Geaster pectinatus Pers. The inner peridium tapers into a slender pedicel which has a distinct collar at the base, and is marked by several striae or ridges as figured by Lloyd, *Geastrae*, p. 15, *figs. 20 22*, and Hollos, *Gast. Ungar.*, *Pl. 8*. Both writers report that the species is a rare one. Along lake bank, Alaska, August, 1905; on upturned stump, Krohn's Lake, August, Algoma, 1909.

Geaster saccatus Fr. Well illustrated by Lloyd, *Geastrae*, *fig. 74*, for a variety of this species. Otto's woods, June, Algoma.

Geaster triplex Jung. This is the most common *Geaster* at Algoma. Schmelling's woods, August.

NIDULARIEAE.

Crucibulum vulgare Tul. Common. On old sticks and on cow dung, Warners' grove, August, Algoma; Mile Bluff, June, Mauston.

Cyathus striatus Hoffm. Grows in dense clusters on old wood, Trumble's ravine, June, Mauston. These were of the form figured by Rolland, *Atlas Champ.*, *Pl. 109, fig. 246*. A much less strigose form nearly gray in color was found in a garden, Fellows', June, Algoma.

Cyathus stercorarius Schw.) DeTon. On dung, Mile Bluff, Mauston.

Cyathus vernicosus DC. Common. In grain fields, Algoma.

SCLERODERMEAE.

Scleroderma cepa Pers. A Wisconsin plant is figured by Lloyd, Myc. Notes., p. 72, Pl. 31. The outer surface is smooth and dark colored. The peridium is thick and hard. Seems to prefer growing along beds of gullies formed in ravines by spring freshets. Trumble's, June to September, Mauston. Bresadola *vid.*

Scleroderma tenerum Berk. (*S. verrucosum minor* Bres. in litt.). The peridium is soft and thin, the outer surface covered with delicate scales. The color varies from white to purplish when bruised. Ripe specimens are 0.5 cm. to 2 cm. broad. The spore mass may be lilac-purple or rust-colored depending on how wet they are or in what state of decay. Common. In grass under oak and on rich bogs under willow, Fluno's bluff, June, Mauston.

Scleroderma verrucosum Pers. Not common. Melchior's grove, October, Algoma.

Scleroderma aurantium Pers. (*S. vulgare* Fr.). Some forms have no suggestion of a yellow color. Hussey, Illust., Pl. 17, and Gillet Champ. Fr., figure these rough varieties which grow in beds of *Polytrichum*, Fluno's woods, June to August, Mauston. The New York plants are deep golden yellow, with much thinner peridium and a longer stipe.

Mycenastrum corium Desv. The outer peridium cracks into areas about one centimeter broad. The hollow shell remains a long time after the spores have all escaped. In pasture lands, along lake bank, September, Algoma.

Secotium acuminatum Mont. Rare. Alaska Lake, Alaska, September.

ASCOMYCETES.

Elaphomyces granulatus Fr. Fresh specimens of this species were found by Richard Detjen about January 1, while engaged in uprooting alders. He reported that as the alders were very large he thought the fungus was buried about six inches beneath the surface. The only other specimen reported for the state was collected at Superior by E. M. Gilbert. This latter specimen was infected with *Cordyceps*. Algoma.

Nectria episphaeria (Tode) Fr. Parasitic on a species of *Valsa* on limbs of *Fagus*, Blahnik's woods, August, Algoma. Distributed as no. 585c, Rehm, Ascom. Exs. Rehm *vid.*

Nectria cinnabarina (Tode) Fr. On old limbs of frondose trees, Schmeiling's grove. August, Algoma.

Nectria peziza (Tode) Fr. On decayed stumps, Detjen's pasture, June, Algoma; Cory's lawn, June, Madison.

Sphaerostilbe cinnabarina Tul. In this species the perithecia were thickly scattered over the bark at the base of a stump. Well developed spores were found in the perithecia, but there was no evidence of a conidial form present. In cemetery woods, May, Madison. Rehm *vid.* Seaver *vid.*

Hypomyces apiculata Pk. On old leaves and rubbish, Krohn's Lake, August, Algoma. Seaver *vid.*

Hypomyces aurantius (Pers.) Tul. Completely covered large specimens of *Polyporus frondosus* which were in a foul state of decay, cemetery woods, June, Madison.

Hypomyces chrysospermus Tul. On *Boletus scaber*, *B. chrysenteron* and *B. subtomentosus*. Specimens of *Boletus* bearing this fungus were frequently found firmly attached to roots of stumps or old sticks by the white mycelium covering the caps. If fresh specimens are left in the collecting basket a few hours, the fungus will attach itself to the basket. Common, June to September, Algoma. Seaver *vid.*

Hypomyces lactifluorum Schw. A large number of specimens of *Russula delica* were found in all stages of infection by this fungus, which is said to attack species of *Lactarius*. Uninfected plants had a mild taste and possessed no milk, and as the series between these and the fully infected forms was complete, there seems to be little doubt as to the identification. Among needles, sandy soil. Mile Bluff, August, Mauston.

Hypomyces lateritius (Fr.) Tul. On *Lactarius zonarius* (Lamarck) Fr., Dewey's springs, August, Algoma.

Hypomyces polyporinus Pk. On *Polyporus versicolor*, Krohn's Lake, August, Algoma. Seaver *vid.*

Hypomyces torminosus (Mont.) Tul. Common on *Lactarius torminosus*, September, Blahnik's woods, Algoma.

Hypocrea aurantiaca Pk. Specimens of *Polyporus chioneus* bearing this fungus vary in color from light yellow to deep purplish red. Krohn's Lake, August, Algoma.

Hypocrea sulphurea Schw. On old limbs, Schmeiling's grove, August, Algoma. Seaver *vid.*

Claviceps purpurea (Fr.) Tul. On rye, Kumm's, Forestville.

Cordyceps militaris (L.) Link. Growing from pupa within a cocoon buried under bark of coniferous log, Perry's swamp, August, Algoma.

Cordyceps militaris form *Isaria farinosa* Fr. On pupae of small moths (?), among needles in swamps, Ahnapee river, September, Algoma.

Pleurage albicans (A. & S.) Griff. [*Sordaria coprophila* (Fr.) C. & DN.]. Immature specimens abundant on cow dung, Dewey's springs, August, Algoma. Rehm *vid.*

Pleurage vestita (Zopf) Griff. The spores are bluish black when mature, one end having a cylindrical appendage as long as the spore, the opposite end with several scarcely visible appendages. On cow dung, Schmeilling's grove, August, Algoma.

Sporormia minima Auersw. On cow dung, very common, Schmeilling's grove, July, Algoma.

Rosellinia aquila (Fr.) DN. var. *glabra* Sacc. On old twigs and limbs, Krohn's Lake, August, Algoma. Rehm *vid.*

Hypoxylon coccineum Bull. On limbs of *Fagus*, Krohn's Lake, August, Algoma. Rehm *vid.*

Hypoxylon coccineum, form *Institale acariforme* Fr. On decayed alder (?), Blahnik's swamp, August, Algoma.

Hypoxylon rubiginosum (Pers.) Fr. On old limbs in alder swamp, Perry's, December, Algoma. Rehm *vid.*

Daldinia concentrica (Bolt.) Ces. & DeNot. On old stumps and logs, common, June to September, Algoma.

Plowrightia morbosa (Schw.) Sacc. On wild species of *Prunus*, June, Algoma.

Ustulina vulgaris Tul. On hemlock stumps, common, Krohn's Lake, August, Algoma. Rehm *vid.*

Xylaria corniformis Fr. On decayed hemlock roots, Krohn's Lake, August, Algoma. Rehm *vid.*

Xylaria corniformis, form *Isaria flabelliformis* Schw. Very common on old sticks, Schmeilling's, July, Algoma.

Xylaria digitata (L.) Grev. The conidial stage resembles in form *X. corniformis*, fruiting stage. On old roots, common, Blahnik's woods, July, Algoma. Rehm *vid.*

Xylaria hypoxylon (L.) Grev. Completely covering decayed oak log, and on the ground underneath. Loomis' woods, July, Mauston.

Xylaria polymorpha (Pers.) Grev. On stumps, Froemming's lawn, August, Algoma. Rehm *vid.*

Scorias spongiosa Schw. This fungus grows on alder infected with the alder blight, *Schizoneura tessellata* Fitch. Large masses of it are often found beneath the trees from which they have fallen. Abundant after a season of wet weather, Ihlenfeld's woods, October, Algoma.

MYXOMYCETES.

Arcyria incarnata Pers. Stony creek, October, Foscora; Fluno's bluff, June, Mauston.

Arcyria magna Rex. The ash-gray, tawny-gray sporangia are unlike any other of this region in color. On maple tree, corner West Johnson and Park streets, July, Madison.

Arcyria nutans (Bull.) Grev. Heineman's woods, June, Mauston, September, Foscora.

Arcyria punicea Pers. Macbride makes this *A. denudata* (L.) Sheldon. Schmelling's grove, September, Algoma.

Badhamia papaveracea Berk. & Rav. Stony Creek, October, Foscora.

Badhamia utricularis (Bull.) Berk. Tornado, September, Kohlberg. Rare.

Cribraria aurantiaca Schrad. Stony creek, August, Foscora.

Cribraria dictidyoides Cooke & Balf. Mile Bluff, June, Mauston; Stony Creek, July, Foscora.

Ceratiomyxa fruticulosa (Muell.) Macb. Common on wet logs, June, Algoma.

Diachea leucopoda Bull. & Rost. Shaw's woods, September, Foscora.

Enteridium rozeanum (Rost.) Wingate. The aethalium is 2 x 3 cm. across and 4 mm. thick. The hypothallus is white, 4 mm. wide. The spores are ferruginous, 7-9 microns, reticulated only on about three-fourths of the surface. On bark, Dells, May, Kilbourn.

Fuligo varians Sommf. One specimen 25 cm. broad and 2 cm. thick was found on sawdust in icehouse, June, Mauston; common at Algoma.

Fuligo violacea Pers. The aethalium is covered with a yellowish cortex, and the spores are purple-violet. McBride, N. Am. Slime Moulds, p. 24, reports that this species occurs everywhere but probably not distinguished from the preceding. On wood, June, Algoma.

Hemiarcyria rubiformis (Pers.) Rost. On oak and poplar bark, Dells, May, Kilbourn; common at Algoma.

Leiocarpus fragilis (Dicks.) Rost. On elm leaves and decayed wood, June to September, Algoma and Mauston.

Lindbladia effusa (Ehr.) Rost. Fluno's woods, June, Mauston.

Lycogala epidendron (Buxb.) Fr. On old limbs, Ahnapee river swamp, September, Algoma.

Lycogala flavo-fuscum (Ehr.) Rost. Several large aethalia, 3-5 cm. long, which had grown the preceding summer, were collected

from a maple tree on which two other somewhat rare slime moulds, *Arcyria magna* and *Reticularia lycoperdon*, had been found. This tree is thoroughly infected with several other species of fungi. March, Madison; common on oak and maple, Mauston and Algoma.

Reticularia lycoperdon (Bull.) Macb. July, Madison.

Stemonitis Morgani Pk. Schmeiling's woods, September, Algoma.

Stemonitis Smithii Macb. Mile Bluff, Mauston.

Tilmadoche virdis (Bull.) Sacc. Hale's woods, June, Mauston; Warner's grove, October, Algoma.

Trichia fallax Pers. Stony creek, October, Foscora.

Trichia favoginea (Batsch.) Pers. Shaw's woods, September, Foscora.

Tubifera ferruginosa (Batsch.) Macb. On same log with *Lindbladia effusa*, Fluno's woods, June, Mauston.

Tubifera stipitata (Berk. & Rav.) Macb. No. 417, Campus woods, June, Madison.

